EFFECTIVENESS OF OIL MASSAGE ON SELECTED PARAMETERS AMONG NEWBORNS AT SELECTED HOSPITAL IN TRICHY DISTRICT

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ABSTRACT

A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District.

The study was conducted in Jegatha Hospital at Trichy. The quasi experimental time series design was used for this study. Permission was obtained from the medical officer of the hospital and data collection was done over a period of 4 weeks. The investigator had selected 60 subjects (30 subjects in experimental group, 30 subjects in control group) by convenience sampling technique. Oral consent was obtained.

Selected newborns were assessed for selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress by observational checklist. On 1st day, pretest on selected parameters was done among newborns on both experimental and control group. After the pretest, on 2nd day onwards oil massage was given to the newborn who are in experimental group, for 5 minutes, 3 times in day time, for 3 days in four hours interval. The post test on selected parameters was done among newborns after oil massage, everyday. The control group was not received oil massage but post test was done daily for 3 days. Overall average of post test data was taken for the data analysis. Descriptive and inferential statistics were used to analyze the findings of the study.

There was a significant difference ($P<0.05$) between mean post test score on selected parameters among newborns of experimental group and control group. The mean post test score of experimental group was 29 (± 0.95) where as in control group it was 16.5 (±1.857) respectively. There was a significant association ($P<0.05$) between the selected parameters of newborns and their education of mothers of experimental group. There was no significant association between the selected parameters of newborns and the selected demographical variables of control group.

The finding of study shows that oil massage was effectiveness on selected parameters of newborns among experimental group. So oil massage can be used safely in hospital settings to improve the health status of newborns.

CHAPTER –I

INTRODUCTION

A baby is born with a need to be loved and never outgrows it.

~ Frank A. Clark.

The children's health is a nation's wealth. A healthy child – a sure future. A healthy childhood is a precursor to healthy adulthood and they are asset to their parents as well as to the nation.

The birth of an infant is one of the most awe-inspiring and emotional events that can occur in one's lifetime. After 9 months of anticipation and preparation, the neonate arrives amid a flurry of excitement. The new human being affects the lives of the parents and also other family members. Some parents and families adjust easily to necessary changes in their lifestyles, where as others find it difficult to cope with these changes and feel varying degrees of turmoil and anxiety. This is especially true if the neonate is not the robust, healthy, lovable infant who was expected. **(Dorothy R. Marlow, 2006)**

Adaptation to extra uterine life requires rapid and profound physiologic changes, including aeration of the lungs, rerouting of the circulation and activation of the intestinal tract. To obtain nourishment, to avoid hypothermia or hyperthermia, to ensure safety, neonates must react appropriately to an expanded range of sensory stimuli. **(Kliegman M. Robert, 2008)**

The healthy newborn infant born at term, between 38 – 42 weeks, cries immediately after birth, establishes independent rhythmic respiration, quickly adapts with extra uterine environment, having an average birth weight and no congenital anomalies. **(Datta Parul, 2009)**

The cry of the newborn baby is vigorous. Mature newborns demonstrate general neuromuscular function by moving their extremities and attempting to control head movement. Blink reflex, Rooting reflex, sucking reflex, swallowing reflex, extrusion reflex, palmar grasp reflex, step (walk)- in – place reflex, plantar grasp reflex, tonic neck reflex, moro reflex, babinski reflex, magnet reflex, crossed extension reflex, trunk incurvation reflex, landau reflex and deep tendon reflexes are well- developed. **(Adele Pillitteri, 1999)**

Neonatal health problems are frequently found ranging from minor physical or physiological peculiarities to the serious life- threatening illness. Minor problems should not be ignored lightly without adequate assessment of the conditions. Early diagnosis and management of the serious problems helps to reduce neonatal morbidity and mortality. Minor problems of neonates are vomiting, constipation, diarrhea, excessive crying, evening colic or 3 months colic, dehydration fever, sneezing and nose block, hiccups, napkin rash, breath holding spells and physiological jaundice. **(Datta Parul, 2009)**

Massage plays an important role in the growth and development of baby's body. Massage makes baby's bones strong and develops healthy body. It also helps baby to have a sound sleep and remain active and cheerful. At the same time this process brings the mother and baby closer. It enables baby to remain in mother's warmth for a longer time. It also helps baby to feel fresh as it improves the in baby's body. In India the concept of massage is popularly known as 'Tel Malish'. **(Baby massage, 2000)**

Massage is a natural and almost instinct way to care the child. It encompasses a wide variety of techniques that manipulates the soft tissue. Oil massage has a long tradition in India, originated from China and flourished in Persia. The written documents about massage dates back to 2000BC the word massage is defined from Latin word 'Massa' or green masseing or 'masso' meaning is to touch, handle, rubbing the entire body of the baby gets comfort both physically and psychologically. **(Field, 1999)**

Baby massage is culturally accepted and has scientifically proven benefits. Most babies enjoy an oil massage, they cry less and sleep better. It improves the circulation and tone of the muscles, gives comfort to the baby, strengthens maternal bonding and provides additional energy to the baby. Because oil can get absorbed from thin skin of the baby. Oil massage is created to improve weight gain, reduce stress and enhance immunological functions of the baby. It prevents dryness and chaffing of skin. Use a non irritating oil like olive oil or coconut oil for oil massage. **(Meharban Singh, 2004)**

Oil massage is both culturally and scientifically acceptable as it provides insulation against heat loss and reduces insensible water loss. Oil protects the skin from the hot climate while stroking and stretching the body are commonly believed to help the babies to grow stronger. Oil can act as a source of warmth and nutrition. Topical oil application has been shown to improve skin barrier function, thermoregulation and is suggested to have a positive effect on growth. The practice of oil massage has gained favor in neonatal intensive care units in developed countries. **(Parthasarathy, 2010)**

Need for study

Worldwide incidence

Globally 10 million children die annually before their fifth birthday, most of them in the neonatal period. More than 98% of these deaths occur in developing countries. Almost half of the deaths in under-five-year-olds occur in infancy. Of the infant deaths, about two-thirds occur in the neonatal period. It has been noted that one-third of all neonatal deaths occur on the first day of life, almost half within 3 days and nearly three-quarters within the first week of life. In developing countries, about 34 of every 1000 live births result in neonatal death. Approximately four million global neonatal deaths that occur annually, 98% occur in developing countries. Health providers mentioned bathing or washing the baby immediately after cutting of the cord, 79% of people give oil massage as a normal procedure. **(Agarwal Monica, Awasthi Shally, 2006)**

Topical therapy with Aquaphor and sunflower seed oil (SSO) were both highly cost-effective than control group, reducing neonatal mortality by 26% and 32% respectively. Topical therapy with SSO and Aquaphor were highly cost-effective in reducing deaths from infection among the preterm neonates studied. The choice of emollient should be made taking into account budgetary limitations and ease of supply. Further research is warranted on additional locally available emollients, use of emollients in community-based settings and generalizability to other geographic regions. **(Ahmed AS, Black R, LeFevre A, Shillcutt SD, Saha SK, Law PA, et. al., 2010)**

In Nepal, approximately, 90% of deliveries take place at home. A cross-sectional survey was carried out in the immunisation clinics of Pokhara city, western Nepal during January and February, 2006. Two trained health workers administered a semi-structured questionnaire to the mothers who had delivered at home. A total of 240 mothers were interviewed. Planned home deliveries were 140 (58.3%) and 100 (41.7%) were unplanned. Majority (93.8%) of the newborns were given a bath soon after birth. Mustard oil massage of the newborns was a common practice (144, 60%). **(Chandrashekhar T Sreeramareddy, 2006)**

In Pakistan, a qualitative and quantitative study was conducted regarding Newborn care practices in low socioeconomic settlements of Karachi. Five focus group discussions and 15 in-depth semi-structured interviews were conducted in July and August 2000; structured questionnaires were administered to 525 recently delivered women. Newborns were bathed immediately (82.1%) after delivery as the vernix was considered 'dirty looking' (78.5%), and it was felt it should be removed. To foster muscle relaxation (80.2%) and strengthen the bones (43.0%), daily massage was universally practiced, mustard oil (75.9%) being the most frequently used lubricant. **(Ali TS, Urocher JM, 2000)**

National wide incidence

In India the neonatal mortality rate (NMR) dropped significantly from 69 per 1000 live births in 1980 to 53 per 1000 live births in 1990. In recent years, however, the NMR has remained almost static decreasing only from 48 to 44 per 1000 live births from 1995 to 2000 (**Agarwal Monica, Tuhina Verma, 2006**)

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At 40th annual conference of the Indian Academy of Pediatrics in Mumbai, the researchers reported that oil massage increases the fatty acid levels and improves growth in neonates. **(Matani, 2011)**

Touch therapy and massage therapy brought physiological changes in the newborn and children to grow and develop. Touch plays an important role in the parent child bond. A 15-minute massage therapy protocol, three times per day, for ten days resulted in 21-47% greater weight gain than standard care alone. Preterm newborns who received 5-10 days of massage therapy. Results showed that 21-48% greater increase in weight gain and hospital stays of 3-6 days less than control infants. **(Diego, Field, Hernandez-Reif, 2005)**

Tactile/ kinesthetic stimulation was given to forty preterm infants (mean gestational age 30 weeks; mean birth weight 1.17 kg). The stimulation was given 45 minutes per day (three sessions of 15 minutes each) for 10 days. It was observed that infants who received massage had 21% greater weight gain (34 versus 28 g). **(Scafidi, 1986)**

Based on the above literature review, Investigator feels that there is a need to create awareness in Tamil Nadu regarding the benefits of oil massage which is one of the traditional practice among newborns. In this study investigator wants to evaluate the effectiveness of oil massage on selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress among newborns who are delivered in Jegatha Hospital at Trichy. However, very few such attempts have been made in India to evaluate the effectiveness of oil massage among newborns. The present study will be undertaken to add evidence based information in the field of Pediatric nursing care in newborns on selected parameters in Jegatha Hospital at Trichy district, Tamilnadu.

Statement of the Problem

A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District.

Objectives

- To assess the selected parameters of newborns among experimental and control group.
- To evaluate the effectiveness of oil massage on selected parameters among newborns.
- To associate the selected parameters of newborns with their demographic variables among experimental group.
- To associate the selected parameters of newborns with their demographic variables among control group.

Hypothesis

H_1- There will be a significant difference between the mean post test score of selected parameters among newborns who undergo oil massage and who do not undergo oil massage at $P< 0.05$ level of significance.

H_2 - There will be a significant association between the selected parameters of newborns and their selected demographic variables of experimental group at $P< 0.05$ level of significance.

H_3- There will be a significant association between the selected parameters of newborns and their selected demographic variables of control group at $P< 0.05$ level of significance.

Operational Definition

Effectiveness

Its refers to statistically significant change in selected parameters among newborns who undergo oil massage.

Oil Massage :

It's a kind of manuer where the baby is kept in supine position and coconut oil massage is done using fine movements like circular motion starting from the neck, trunk and extremities of the newborns. In the back efflurage must be given.

New Born :

Newborn refers to babies born at Jegatha hospital, Trichy who are less than 28 days old.

Selected parameters:

It refers to changes in skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress.

Assumption

- Oil massage may have some improvement on selected parameters of newborns.
- Oil massage has no adverse effects among newborns.

Delimitation

- The study was limited to 4 weeks only.
- The study was conducted only among the participants from Jegatha hospital, Trichy. Hence, the generalization was possible only for selected area.

Conceptual Framework:

A conceptual framework is interrelated concept or abstractions that are assembled together in some rationale scheme by virtue of their relevance to common theme. **(Polit, 1995)**

The conceptual framework based on MODIFIED J.W. KENNY'S OPEN SYSTEM MODEL (1969) which focus on response.

An open system is a system which continuously interacts with its environment. The interaction can take the form of information, energy, or material transfers into or out of the system boundary, depending on the discipline which defines the concept.

The concept of an "open system" was formalized within a framework that enabled one to interrelate the theory of the organism, thermodynamics, and evolutionary theory. This concept was expanded upon with the advent of information theory and subsequently systems theory.

Input

According to theorist, resources are taken or received from the external environment.

In this study, input refers to assessment of newborns on selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress and demographic variables among experimental and control group.

Throughput

According to theorist, the process of conversion or transformation of resources within a system.

In this study, throughput was application of coconut oil massage on newborns among experimental group.

Output

According to theorist, the work of the system, exported back into the environment.

In this study, Output refers to the improvement in selected parameters of newborns among experimental group and minimal change in selected parameters of newborns among control group.

Feedback

According to theorist, a continuing source of information concerning the relationship with the external environment used to make the necessary changes in order to service and to grow.

In this study, feedback refers to reassessment of newborn on selected parameters.

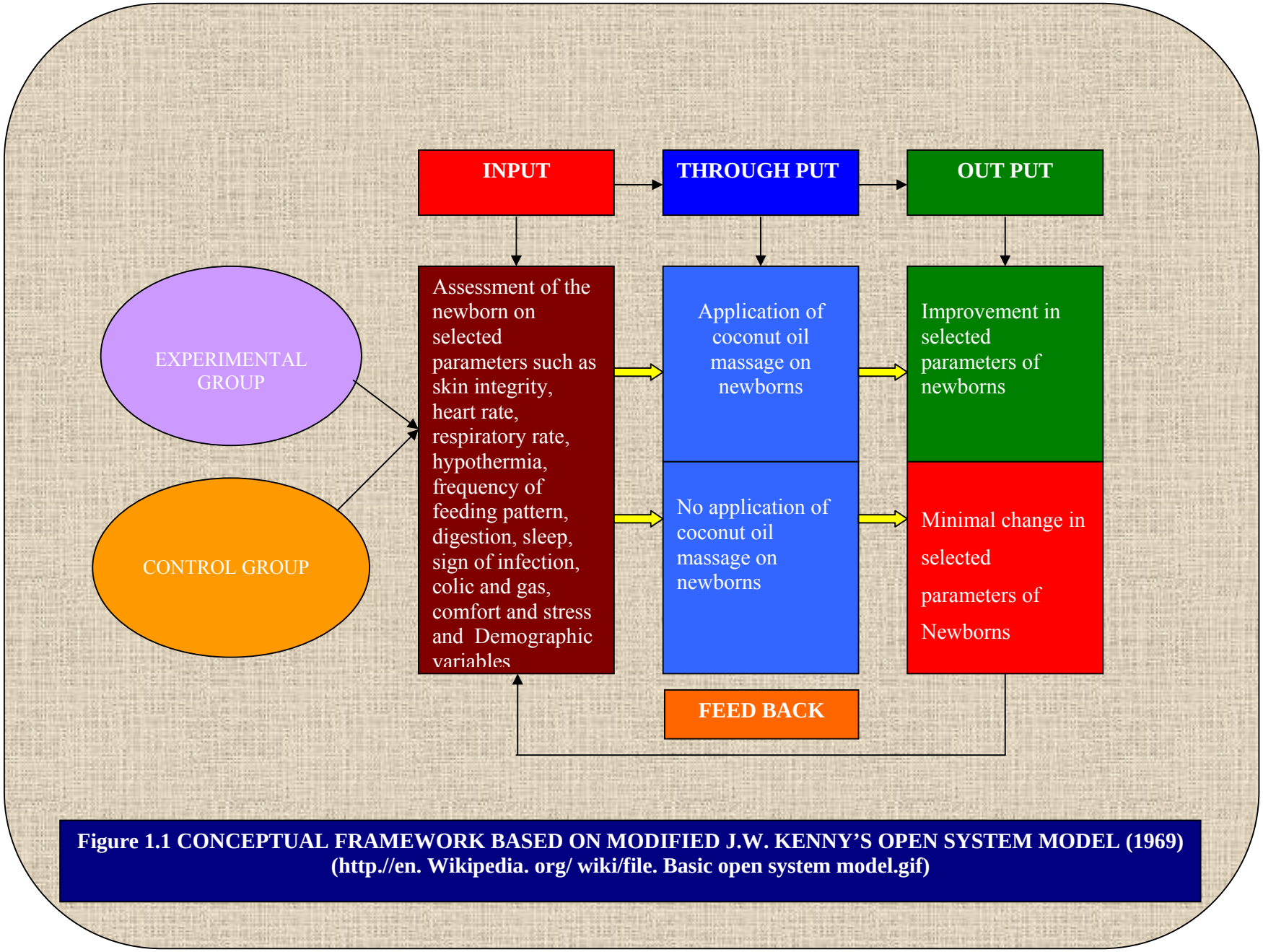

Figure 1.1 CONCEPTUAL FRAMEWORK BASED ON MODIFIED J.W. KENNY'S OPEN SYSTEM MODEL (1969) (http.//en. Wikipedia. org/ wiki/file. Basic open system model.gif)

CHAPTER-II
REVIEW OF LITERATURE

The literature review involves the systematic identification, location, scruting and summary of written materials that contain information on a research approach.

The purpose of review of literature is to obtain comprehensive knowledge base and in depth information about related research topic for laying strong foundation for the study. **(Polit, 1998)**

The literature reviewed related to the present study is organized and presented under the following headings.

I. Literature related to oil massage
II. Literature related to selected parameters of newborns
III. Literature related to coconut oil massage among newborn
IV. Literature related to massage

I. Literature related to oil massage

Vaivre-Douret. L., (2009). conducted a study on effect of multimodal stimulation and cutaneous application of vegetable oils on neonatal development in preterm newborns using a randomized controlled trial at Paris. In this study 49 low risk preterm infants, born at 31- 34 week gestation newborns were selected. The group who received Sensori- Tonico-Motor (STM) with ISIO4 oil demonstrated enhanced weight gain (+57%) compared with controls (P = 0.030). All STM groups showed shorter admission times (mean reduction 15 days, 95% CI 23-50 days hospitalized, P = 0.005), and an increase in body length (P = 0.030). Both groups of oil massaged babies (almond and ISIO4) showed an increased neurological score (P = 0.001) compared to controls. An additional benefit seen was improved moisturization (P = 0.001), and quicker recovery of dermatological conditions. No adverse dermatological events were observed. The combination of Sensori- Tonico-Motor(STM) and cutaneous application of oils to healthy preterm babies resulted in enhanced weight gain and neurological development, and a shorter stay in hospital.

Darmstadt. GL., (2008). conducted a study on effect of skin barrier therapy on neonatal mortality rates in preterm infants at Bangladesh. A prospective, randomized, controlled, clinical trial was conducted among preterm infants (gestational age: ≤33 weeks; *N* = 497) received daily topical applications of sunflower seed oil or Aquaphor ointment. Treatment with sunflower seed oil resulted in a statistically significant 26% reduction in mortality rates, compared with infants not receiving topical emollient therapy. Aquaphor therapy also significantly reduced mortality rates, by 32%. Topical therapy with skin barrier-enhancing emollients improved survival rates among preterm hospitalized infants in Bangladesh. This study provides strong evidence for the implementation of topical therapy for high-risk preterm neonates in developing countries.

Ahmed Nawshad Uddin, Saha K. Samir, (2007). conducted a study on acceptability of massage with skin barrier-enhancing emollients in young neonates in Bangladesh. The study was carried out to gain insights regarding oil-massage practices and acceptability of skin barrier-enhancing emollients in young, preterm Bangladeshi neonates. Prospective study was conducted among preterm infants of <33 weeks gestational age were randomized to high- linoleate sunflower seed oil, aquaphor original emollient ointment in Comparison group. A survey was administered at admission to assess routine skin- care practices prior to admission. Oil massage was given to 83 (21%) of 405 babies before hospital admission, 86% (71/83) of whom were delivered at home. Application of oil, most commonly mustard oil (88%, 73/83), was started within 1 hour of birth in 51 cases (61%). Of infants who receive emollient therapy in the hospital, 42% (n=32) of mothers reported that the emollient applied in the hospital was better than that available at home, and only 29% would use the same oil (i.e. mustard oil) in the future as used previously at home.

Arora J, (2005). conducted study on effect of oil massage on growth and neuro behavior in very low birth weight preterm neonates less than 1500g at Lok Nayak Hospital, New Delhi using randomized controlled trial. Eligible neonates were randomized to one of the three groups a) massage with oil, b) massage without oil and c) no massage. Weight gain in the oil massage group (365.8 ± 165.2g) was higher compared to the only massage group (290.0 ± 150.2g) and no massage group (285.0 ± 170.4g). Serum triglycerides and neonatal neuro behavior were comparable in the

three groups. Oil application may have a potential to improve weight gain among preterm very low birth weight neonates.

Darmstadt. GL., Saha. SK., (2005). conducted a study on effect of topical treatment with skin barrier-enhancing emollients on nosocomial infections in preterm infants in Bangladesh using a randomized controlled trial. They randomly assigned infants born before week 33 of gestation to daily massage with sunflower seed oil (n=159) and aquaphor (petrolatum, mineral oil, mineral wax, lanolin alcohol; n=157). Then they compared incidence of nosocomial infections among infants in these two groups with an untreated control group (n=181). 20 patients in the control group, and 22 in each of the treatment groups left the hospital early, but were included in the final analysis. Overall, infants treated with sunflower seed oil were 41% less likely to develop nosocomial infections than controls (adjusted incidence rate ratio [IRR] 0.59, 95% CI 0.37-0.96, p=0.032). No adverse events were seen. Their findings confirmed that skin application of sunflower seed oil provides protection against nosocomial infections in preterm very low birth weight infants.

Darmstadt. GL., Samir. K., (2003). conducted a study on neonatal oil massage in Bangladesh. Topical application of certain natural oils may improve skin barrier function and results in a number of potential health benefits, particularly among preterm infants. they conducted a survey of neonatal oil massage practices in Bangladesh, and found that 96% of 352 caregivers practiced oil massage, irrespective of socioeconomic status and place of residence. Mustard oil and olive oil were used most commonly (alone or in combination in 95% and 11% of cases, respectively), although olive oil was used primarily by families of higher socioeconomic status. In 80% of cases, oil massage was started within 4 days of birth and practiced 2-3 times daily over the entire body throughout the neonatal period.

Darmstadt. GL., Mao-Qiang. M., (2002). conducted a study on impact of topical oils on the skin barrier and possible implications for neonatal health in developing countries, Medical Institutions, Baltimore, USA. Natural oils were applied topically as part of a traditional oil massage to neonates in many developing countries. They sought to identify inexpensive, safe, vegetable oils available in developing countries that improved epidermal barrier function. A single application of sunflower seed oil significantly accelerated skin barrier recovery within 1 hour, the effect was

sustained 5 hour after application. In contrast, the other vegetable oils (mustard, olive and soybean oils) were tested for massage. This study shows that there is a significantly delayed recovery of barrier function compared with control- or Aquaphor-treated skin. Twice-daily applications of mustard oil for 7 days resulted in sustained delay of barrier recovery. Their data suggested that topical application of linoleate-enriched oil such as sunflower seed oil might enhance skin barrier function and improve outcome in neonates with compromised barrier function.

Darmstadt. GL., Saha SK., (2002). conducted a study on traditional practice of oil massage of neonates in Bangladesh. This study was undertaken to gain insights into epidemiology, practice and perceptions regarding traditional oil massage of Bangladesh neonates. A questionnaire was administered verbally to the primary caretaker of 352 outpatients at the Dhaka Shishu Hospital, More than 96% (340/352) of the caregivers practiced oil massage, irrespective of socioeconomic status and place of residence. Among those at the Dhaka Shishu Hospital who practiced oil massage, mustard oil was used alone or in combination 95%(303/320) over the entire body, 1-3 time(s) daily (96%), starting in the first three days of life(72%) in both term and by preterm neonates. Perceived benefits included prevention of infections(69%) and hypothermia(2%).

Agarwal. KN., Gupta A., (2000). conducted a study on effect of massage and use of oil on growth, blood flow and sleep pattern in infants at G.T.B. Hospital, Delhi. Full term born healthy infants (n = 125), 6 $\pm$ 1 week of age, weight> 3000 g were randomly divided into five groups. Infants received (i) herbal oil, (ii) sesame oil, (iii) mustard oil, or (iv) mineral oil for massage daily for 4 week. The fifth group did not receive massage and served as control. However, in the group with sesame oil massage increase in length, midarm and midleg circumferences by 1.0, 0.9 and 0.7 cm, respectively was significant ($P < 0.05$, < 0.01 and < 0.05). The femoral artery blood velocity, diameter and flow improved significantly by 12.6 cm/sec, 0.6 cm and 3.55 cm3/sec respectively in the group with sesame oil massage as compared to the control group. Massage improved the post massage sleep, the maximum being 1.62 hours in the sesame oil group ($P < 0.0001$). Massage in infancy improves growth and post-massage sleep. However, only sesame oil showed significant benefit.

Darmstadt. GL., Mullany. LC., Khatry. SK., Tielsch. JM., (2000). conducted a study on traditional massage of newborns in Nepal. A questionnaire concerning the usage and reasons for application of mustard and other oils to newborn skin was administered to the caretakers of 8580 newborns in Sarlahi district of rural Nepal. Approximately 99 % of newborns were massaged at least once with mustard oil in the 2 weeks after birth, and 80% were massaged at least twice daily. Promotion of strength, maintenance of health, and provision of warmth were the most commonly cited reasons for application of mustard oil. An understanding of cultural, social, and economic factors that shape the context of traditional healthcare practices is essential to the design and implementation of intervention trials examining the relative efficacy of application of oils in reducing neonatal mortality and morbidity.

Field, Schanberg, (1996). conducted a study on Massage with oil has more positive effects on normal infants at Touch Research Institutes, United States. As compared with infants who received massage without oil, infants who received massage with oil were less active, showed fewer stress behaviors and head averting, and their saliva cortisol levels decreased more. Also, vagal activity increased following massage with oil versus massage without oil.

Nopper and coworkers, (1996). conducted a study on the effect of prophylactic application of emollient ointment in preterm infants using randomized controlled trials. Infants were evaluated for a decrease in the risk of proven nosocomial infection among infants who received prophylactic application of emollient ointment (typical relative risk 0.29, 95% CI 0.07, 1.16, typical risk difference -0.13, 95% CI -0.25, -0.01). Prophylactic application of emollient ointment decreased transepidermal water loss, decreased the severity of dermatitis, and decreased the risk of suspect sepsis and proven sepsis.

Johanson, Jones. P., Spencer. A., Malla. D., Rolfe. P., (1992). conducted a study on effect of post-delivery care on neonatal body temperature at Maternity Hospital, Kathmandu, Nepal. A prospective observational study of post-delivery care and neonatal body temperature using a randomized controlled intervention. In this study they were using three simple methods for maintaining body temperature. There were 500 infants in the initial observation study and 300 in the intervention study. In the observation study, 85% (420/495) of infants had temperatures < 36 degrees C at 2

hours and nearly 50% (198/405) had temperatures < 36 degrees C at 24 hours (14% were < 35 degrees C). Most of the infants who were cold at 24 hours had initially become cold at the time of delivery. In the intervention study, all infants were dried and wrapped before random assignment to one of the three methods like the "kangaroo" method, the traditional "oil massage" and a "plastics waddler". All three were found to be equally effective. Overall, 38% (114/298) of the infants had temperatures < 36 degrees C at 2 hours and 18% (41/231) at 24 hours (when none was < 35 degrees C).

Rutter. N., Hull. D., (1981). conducted a study on reduction of skin water loss in the newborn with the effect of applying topical agents. The waterproofing effect of a number of creams, oils, and greases was examined by measuring water loss from adult skin before and after topical application. Creams had a high water content and were ineffective, oils produced a modest fall in water loss, but paraffin in grease form had a pronounced, sustained waterproofing effect. A paraffin mixture (80% soft, 20% hard paraffin (BP) was then applied to the skin of 3 preterm babies nursed naked in incubators. Overall skin water loss fell by 40 to 60% after application and was still lower than pretreatment levels 6 hours later. The topical application of paraffin offers a new approach to reduction of the high evaporative water and heat losses of preterm babies.

II. Literature related to selected parameters of newborns

1. Skin integrity

a) Skin turgor

Newborn's skin should feel resilient if the underlying tissue is well hydrated. If a fold of the skin is grasped between the thumb and fingers, it should feel elastic. When it is released, it should fall back to form a smooth surface, If severe dehydration is present, the skin will not smooth out again but will remain in an elevated ridge. **(Adele pillitteri, 1999)**

b) Skin texture

Skin texture of the newborn's skin is velvety smooth and puffy, especially about the eyes, the legs, the dorsal aspect of the hands and feet, the scrotum or labia. **(Hockenberry, 2005)**

2. Heart rate

Heart rate the newborn, an average 120 to 160 beats per minute with an average of 140 beats per minute. It may be irregular and increased during crying and may be slow about 80 to 100 beats per minute during sleep. **(Datta Parul, 2009)**

3. Respiratory rate

Healthy neonates cries almost immediately after birth and establishes satisfactory and spontaneous respiration. The respiratory rate the newborn varies between 30 to 60 breaths per minute, that is at resting state to crying, with an average 40 breaths per minute. Respiration is usually periodic, shallow but irregular. It may be slow in some babies. It is usually thoraco- abdominal without any retractions and grunting. **(Datta Parul, 2009)**

4. Hypothermia

Temperature range in which the basal metabolic rate of the newborn at minimum oxygen utilization is least and baby thrives well is known as 'thermo – neutral range of temperature' or 'neutral thermal environment'. **(Ghai, 2008)**

Normal temperature - 36.5 -37.5^{0}Celsius

Mild hypothermia - <36.5- 36.0^{0}Celsius

Moderate hypothermia - <36.0 - 32.0^0 Celsius

Severe hypothermia - <32.0^0 Celsius

5. Frequency of feeding pattern

According to breast feeding hospitalized initiative (BFHI) guidelines breast feeding should be started within half an hour of normal delivery and within 4 hours of lower segment caesarian section. The mother should be advised to feed the baby every 2 to 3 hours on demand schedule. Breast feeding should be given at least 8times per day and the baby's back should be gently tapped, after placing the baby on the mother's lap or shoulder to get rid of gas. **(Elizabeth. K.E., 2009)**

6. **Digestion**

Moderate pressure massage stimulate vagal activity (activation of vagal nerve is an index of parasympathetic nervous system activation) which leads to an increase in the release of digestive hormones and an increase in gastric motility. **(Diego, 2005)**

7. **Sleep**

Sleep patterns vary from those of a newborn, who sleeps an average of 16 out of every 24 hours, to those of an adult, who can make do with only 4 hours out of 24. A neonate spends about 80 percent of the time in sleeping about 20 hours a day. **(Datta Parul, 2009)**

Infants less than 36 weeks of gestation (birth weight <2.5 kg) subjected to massage till 8 months of age, had improved quality of sleep with less awakening during sleep. These infants were more active during the day. **(Kelmanson, 2000)**

8. **Colic and Gas**

Colic often is diagnosed using the rule of threes- crying for more than 3 hours per day, more than 3 days per week, for more than 3 weeks. The crying of colic is often described as paroxysmal and may be characterized by facial grimacing, drawing up of the legs, and passing flatus. Colic is a condition in which the infant cries inconsolably after most feedings colic is different from the expected and normal evening fussy time. Colicky babies seem especially gassy. **(Karen J. Marcdante, 2010)**

9. **Stress**

Massage is reduction in stress behaviors like sneezing, crying, grimacing, yawning, jerking of limbs of neonates. **(Hernandez, 2007)**

Anjali Kulkarni, (2010). conducted a study on massage and touch therapy in neonate at Indraprastha Apollo Hospital, New Delhi, India. Massaging the newborn has been a tradition in India and other Asian countries since time immemorial. Evidence exists supporting the benefits of touch and massage therapy. The review suggests that massage has several positive effects in terms of weight gain, better

sleep-wake pattern, enhanced neuromotor development, better emotional bonding, reduced rates of nosocomial infection and thereby, reduced mortality in the hospitalized Children.

III. Literature related to coconut oil massage among newborns

Field. T., (2010). conducted a study on preterm infant massage therapy at Touch Research Institutes, Miami. Research on ways of delivering the massage is also explored including using mothers versus therapists and the added effects of using oils. The use of mothers as therapists was effective in at least one study. The use of oils including coconut oil and safflower oil enhanced the average weight gain, and the transcutaneous absorption of oil also increased triglycerides. The weight gain was associated with shorter hospital stays and, thereby, significant hospital cost savings. Despite these benefits, preterm infant massage is only practiced in 38% of neonatal intensive care units. The increases noted in vagal activity, gastric motility, insulin and IGF-1 levels following moderate pressure massage are potential underlying mechanisms.

Ramasundari. BA., (2009). conducted a study on the effectiveness of coconut oil massage on newborns at OM Sakthi Hospital Krisnagiri. In this study 30 newborns delivered by LSCS, weight more than 2.5kg were conveniently selected. Pre and post assessment was done by Brazeldon neonatal behaviour assessment scale. The mean difference 1.8 with S.D 0.388 and paired 't' test 8.11 which was highly significant at ($P<0.001$) level in sleeping time, crying spell the mean difference was 0.9 with S.D 0.045 and paired 't' value of 9.0 which was highly significant at ($P<0.001$) level, feeding frequency the mean difference was 1.07 with S.D 0.060 and paired 't' value of 7.44 showed high level of significance at ($P<0.001$). Massage therapy on newborns crying spell reduced, feeding frequency increased, sleeping time increased.

Saeedi, (2008). conducted a study on transcutaneous feeding on the effect of massage with coconut oil on weight gain in preterm newborns at Mashhad. In this study seventy-three newborns were randomly assigned to 3 groups, A (massage with coconut oil), B (massage only), and C (control group). Quasi-experimental study was used in this study. The weights of the newborns in all 3 groups were measured daily. There was a significant difference between the weight gain in the 3 groups after the intervention. The results of Tukey test indicated that there was a significant difference

between the results in groups A and B and groups A and C but there was no significant difference between those in groups B and C. Massage with coconut oil has a positive effect on weight gain in preterm newborns.

Sushma Nangia, Vinod Paul, (2008). conducted a study on topical coconut oil application reduces trans epidermal water loss in preterm very low birth weight neonates using a randomized clinical trial at All India institute of medical sciences, New Delhi. In this study seventy-four preterm VLBW neonates were randomly assigned at 12 hours of age to either 4 mL of topical coconut-oil application every 12 hours for 7 days (n = 37) or no oil application (n = 37). TEWL declined for those in both groups during the first week of life, proportional reduction in TEWL in the infants in the coconut-oil group was much greater compared with controls. (mean difference: 6.8 g/m^2 per hour all during first week of life [95% confidence interval: 3.5–10.2]; P = .000**).** Coconut oil application in pre term very low birth weight neonates reduced transepidermal water loss by as much as 46%.

Jhansi. B., (2006). conducted a study on effect of oil massage on changes in weight and neuro behavioral response of low birth weight babies at NICU and obstetrics wards in St. Johns medical college hospital, Bangalore. In this study sample size was 64 low birth weight babies (n = 64). Quasi experimental study was used. The Oil massage was found to be feasible, safe and cost effective. There was marginal improvement in mean in experimental group showed more improvement in attention and habitualization($P<0.05$). The study revealed that there was a significant difference in attention and habitualization.

Fernandez. A. R., (2005). conducted a study on Transcutaneous absorption of oil in preterm babies at Mumbai, India. A mixture of coconut oil and Meadow foam oil which contains unique fatty acids, which acted as marker fatty acids was applied to the skin of babies. One mL blood was collected before and one hour after post oil application. Both pre and post oil application serum samples were hydrolyzed and derivatised with 2-phenyl hydrazine hydrochloride in order to detect fatty acids by HPLC analysis on C-8 column. None of the pre oil application serum sample showed the presence of the marker fatty acids. The post oil application serum sample of all the 12 babies showed the presence of marker fatty acids of Meadow foam oil which indicates transcutaneous absorption of oil in preterm babies.

Kirti solanki, Manoj Matani, (2005). conducted a study on transcutaneous absorption of topically massaged oil in neonates at Pune, India.120 study babies were randomly assigned to three oil groups i) safflower oil (n=40), ii) coconut oil (n=40), iii) no oil group (n=40) . Post oil triglyceride values were significantly raised in both the oil groups and in controls. However, the quantum of the rise was significantly higher in oil groups as compared to controls ($P<0.05$). Fatty acid profiles showed significant rise in essential fatty acids in safflower oil group and saturated fats in coconut oil group($P<0.05$). Changes were more evident in term babies.

Sankaranarayanan. K., (2005). conducted a study on oil massage in neonates using an open randomized controlled trail of coconut versus mineral oil in Mumbai, India. In this study total of 224 babies(112 preterm and 112 term babies) were enrolled. In each gestation strata, there were 38 babies in the coconut oil, 37 in the mineral oil and 37 babies in the placebo group. In the preterm group, 32(84.2%) babies completed the follow up in the coconut oil and mineral oil subgroups and 31(83.8%) in the placebo group. In the term babies, 33(86.8%) completed the follow up in the coconut oil group and 32 babies (86.5%) completed the follow up in the mineral oil and placebo groups. Coconut oil massage resulted in significantly greater weight gain velocity as compared to mineral oil and placebo in the preterm babies group and in the term group, are compared to placebo group. Neuro behavioral outcome was assessed by Braselton score. The study shows significant result in newborns receiving coconut oil.

IV. Literature related to massage

Procianoy, (2010). conducted a study on neurodevelopment of newborns at Touch Research Institutes, United States. In this study 73 newborns (35 in Intervention Group, and 38 in Control Group) were selected. Babies in the intervention group exhibited higher Psychomotor Development Index and significantly higher Mental Development Index scores than babies from the Control Group.

Guzzetta, (2009). conducted a study on the effect of massage intervention on the development of visual system in pre-term infants at Touch Research Institutes, United States. In the intervention group the authors recorded quicker development of the visual cortex which was registered as maturation of visual evoked potentials and of visual acuity and maturational changes in electroencephalographic activity.

Shiv Sajan Saini, (2009). conducted a study on researchable issues in care of normal newborn, neonatal transport, hypoglycemia, CPAP, cranial ultrasonograpy and blood component therapy in Chandigarh. Oil massage is a low cost traditional practice well ingrained in Indian cultures. Two Indian studies in the term babies have shown that oil massage promoted weight gain in healthy term neonates.

Livingston K, Beider S, Kant AJ, Gallardo CC, Joseph MH, Gold JI et. al., (2007). conducted a study on touch and massage for medically fragile infants at Childrens Hospital Los Angeles, USA using a longitudinal randomized control trial (RCT) of hand containment/massage versus standard of care in a level III academic Center for Newborn and Infant Critical Care (CNICC). In this study Certified infant massage instructors (CIMIs) taught parents to massage their hospitalized infants. Preliminary data from this study indicates feasibility and safety of infant massage and satisfaction among the caregivers, CIMIs and the nurses in the CNICC. In this study was the demonstration of the infants' safety based on physiological stability and no change in agitation/pain scores of the infants receiving massage.

Vickers A, Ohlsson A, Lacy JB, Horsley A, (2004). conducted a study on massage for promoting growth and development of preterm and low birth-weight infants using randomized trials in which infants with gestational age at birth <37 weeks or weight at birth <2500g received systematic tactile stimulation by human hands. Thereafter, massage was continued at home. Changes in weight, length and head circumference and neuro-behavior (Brazelton Neuro-Behavioral Assessment Scale) were assessed in both groups before, during and after the study period. Massage interventions improved daily weight gain by 5.1g (95% CI 3.5, 6.7g). Massage interventions also appeared to reduce length of stay by 4.5 days (95% CI 2.4, 6.5) though there are methodological concerns about the blinding of this outcome.

Mathai S, Fernandez A, Mondkar J, Kanbur W, (2001). conducted a study on effects of tactile-kinesthetic stimulation in pre terms using a controlled trial at premature unit of a large, teaching hospital. 48 well preterm with birth weights between 1000-2000 grams were selected. The neonates were systematically allocated into test and control groups. An increase in heart rate (within physiologic range) was seen in the test group during stimulation. This group also showed a weight gain of

4.24 g/day more than controls, which was statistically significant. On the Brazelton Scale the test group showed statistically significant improved scores on the orientation, range of state, regulation of state and autonomic stability clusters at follow-up. Tactile-kinesthetic stimulation when administered to well, preterm infants has a beneficial effect on growth and behavioral development with no adverse effects on physiologic parameters.

Field T, Wheeden A, (1993). conducted a study on massage effects on cocaine-exposed preterm neonates at Touch Research Institutes, United States. Findings suggested that the massaged infants averaged 28% greater weight gain per day (M=33 versus 26 g), although the groups did not differ in intake (calories or volume). It showed significantly fewer postnatal complications and stress behaviors than did control infants and demonstrated more mature motor behaviors on the Brazelton examination at the end of the 10-day study period.

Field T, and Schanberg, (1990). conducted a study on massage alters growth and catecholamine production in preterm newborns at Touch Research Institutes, United States. The treatment group showed superior performance on the NBAS on the habituation cluster following the treatment period, and less time in active sleep and less facial grimacing, mouthing/yawning, and clenched fists.

Field T, Scafidi F, and Schanberg, (1987). conducted a study on massage of preterm newborns to improve growth and development at Touch Research Institutes, United States. Heightened responsiveness of the neonate may enhance the early parent-infant relationships which may, in turn, contribute to optimal growth and development at later stages in infancy.

Field T, (1986). conducted a study on tactile/kinesthetic stimulation effects on preterm neonates (mean gestational age, 31 weeks; mean birth weight, 1,280 g; mean time in neonatal intensive care unit, 20 days) at Touch Research Institute, United states. Tactile/kinesthetic stimulation was given to 20 preterm neonates during transitional nursery care, and their growth, sleep-wake behavior and Brazelton scale performance was compared with a group of 20 control neonates. The stimulated neonates averaged a 47% greater weight gain per day (mean 25 g versus 17 g), were

more active and alert during sleep/wake behavior observations, and showed more mature habituation, orientation, motor, and range of state behavior on the Brazelton scale than control infants. These data suggest that tactile/kinesthetic stimulation may be a cost effective way of facilitating growth and behavioral organization even in very small preterm neonates.

CHAPTER-III

RESEARCH METHODOLOGY

"I keep six honest service men, they taught me all

I know their names are,

What, When, Why, Where, Who & How'"

- Anonymous.

Research approach

An evaluative approach was used in this study.

Research design

The research design used in this study was Quasi experimental time series design.

	E	O1 X	O2 X	O3 X	O4
	C	O1	O2	O3	O4

E	- Experimental group
C	- Control group
O1	- Pre test score before manipulation
O2,O3,O4	- Post test manipulation
X	- Manipulation (oil massage)

Variables

Independent variable

Independent variable was oil massage.

Dependent variable

Dependent variable was selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress.

Description of study setting

The study was conducted in Jegatha Hospital at Trichy. It is located 180 kilometer away from Sara Nursing College, Dharapuram. It was 50 bedded hospital with 10- 15 deliveries per day.

Study population

The target population of the study was newborns.

Sampling

Sample

The newborns who fulfils the inclusion criteria and delivered in Jegatha Hospital at Trichy during the period of data collection.

Sample size

The total sample size used for this study was 60 newborns who are delivered in Jegatha Hospital, Trichy. Among them 30 were in experimental group and 30 were in control group.

Sampling technique

Convenience sampling technique was used for this study.

Criteria for sample selection

The samples was selected based on the following inclusion and exclusion criteria.

Inclusion criteria

- Full term newborns weighing 2500gms or more.
- Medically stable with no requirement of drugs other than mineral and vitamin supplements.
- Apgar score >7 at 1 and 5 minutes with no resuscitation required at birth.
- Mothers of newborns those who are willing to participate in this study.
- Those who are available during the period of data collection.
- Babies of puerperal sterilized mothers.
- Babies born with all types of deliveries.

Exclusion criteria

- The newborns with congenital anomalies or neuromuscular disorders, dermatological problems.
- Less likely to follow-up.
- Babies born with ambiguous genitalia.

Description of tool

The data collection tool consists of

Section- A: Structured interview questionnaire on Demographic data of newborns and family.

Section- B: Checklist to assess the Selected parameters of newborns.

Section-A

Demographic data

It consists of two parts.

Part– A

Newborn's profile

Age (Number of days), Birth order of baby, Gender, Mode of delivery, Birth weight, Religion, Feeding pattern.

Part- B

Mother's Profile

Education of mother, Occupation of mother, Family income and Type of family.

Section - B

It consists of observational checklist. This tool consisted of 15 items of questions related to selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress. Each question had 2 options. If the parameter is normal, the score of 2 has been given. If it is abnormal the score one was given. The maximum obtainable score for the observational checklist was 30. Total score of each subject was calculated, and converted into percentage and interpreted as follows.

50% and below	-	Poor response
51-74%	-	Moderate response
75% and above	-	Good response

Validity

Totally 4 experts have given validity (3 experts from the department of child health nursing, 1 pediatrician). The tool was found valid. The suggestions were incorporated.

Reliability

To ensure the reliability of the tool, it has been administered to 6 newborns. The reliability to assess the selected parameters was established by inter- rater method. The reliability coefficient was r = 0.886. Hence the tool was reliable.

Pilot study

In order to find out the feasibility and practicability, a pilot study was conducted at Government Hospital, Dharapuram for a period of 1week (16.6.2011-23.6.2011) among 6 newborns (3 in experimental and 3 in control). The study was found feasible to conduct.

Method of data collection

Ethical consideration

Formal permission was obtained from the medical officer and informed oral consent was obtained from the parents of newborn.

Period of data collection

The data collection was done over a period of four weeks from 29.06.2011 to 28.7.2011.

Data collection procedure

The data collection was done in postnatal and post operative ward at Jegatha Hospital in Trichy. Permission was obtained before data collection. The objective of the study was explained to medical officer and other professionals to get co-operation during the procedure. Oral consent from parents of newborns were obtained. 60 subjects were selected on the basis of convenience sampling. In which 30 newborns were assigned to experimental group and 30 newborns were assigned to control group. Since it was not possible to have the entire sample on one day, two to three samples were selected conveniently based on criteria for sample selection. Selected newborns were assessed for selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress by observational checklist.

On 1st day, pretest on selected parameters was done among newborns on both experimental and control group. After the pretest, on 2nd day onwards the baby kept in supine position and coconut oil massage was given using fine movements like circular motion starting from the neck , trunk and extremities of the newborns. In the back, efflurage must be given to the newborn who are in experimental group, for 5 minutes, 3 times in day time, for 3 days in four hours interval. The post test on selected parameters was done among newborns after oil massage, everyday. The control group was not received oil massage but post test was done daily for 3 days. Overall average of post test data was taken for the data analysis. Descriptive and inferential statistics were used to analyze the findings of the study.

Plan for data analysis

Descriptive statistics was used for categorical data, independent 't' test was to evaluate the effectiveness of oil massage, chi- square test was used to associate the selected parameters of newborn with selected demographic variables among experimental and control group.

CHAPTER-IV

ANALYSIS AND INTERPRETATION

Analysis of data is a general way which involves a number of closely related operations, which performed, with the purpose of summarizing the collected data, organizing these in such a manner that they answer to research questions.

Korlinger describes data analysis as categorizing, ordering, manipulating and summarizing the data to obtain answer to research questions. Data analysis was conducted to reduce, organize and give meaning to the data. The data were collected, analyzed and interpreted according to the objectives of the study.

This chapter presents the analysis and interpretation of data collected from 60 newborns to evaluate effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District. The results obtained were classified and tabulated and the following analysis were performed in fulfilling the objectives of the study.

The data analysis are presented in the following sections.

Section- A Distribution of samples according to selected demographic variables.

Section- B Assessment on selected parameters among newborns of experimental and control group.

Section- C Effectiveness of oil massage on selected parameters among newborns

Section- D Association between selected parameters of newborns and their selected demographic variables among experimental group.

Section- E Association between selected parameters of newborns and their selected demographic variables among control group.

SECTION-A

Table 4.1: Distribution of samples according to selected demographic variables.

n=60

S. No	Demographic variables	Experimental Group (n = 30)		Control group (n = 30)		Total (n = 30)	
		f	%	f	%	f	%
1	**Age**						
	a. 1-3days	13	43.3	12	40	25	41.7
	b. 4-6days	12	40	13	43.3	25	41.7
	c. >6days	5	16.7	5	16.7	10	16.6
2	**Birth order**						
	a. 1st	11	36.7	9	30	20	33.3
	b. 2nd	16	53.3	17	56.6	33	55
	c. 3rd	2	6.7	2	6.7	4	6.7
	d. >3	1	3.3	2	6.7	3	5
3	**Gender**						
	a. Male	15	50	18	60	33	55
	b. Female	15	50	12	40	27	45
4	**Type of birth**						
	a. Normal birth	5	16.7	5	16.7	10	16.7
	b. Assisted birth	5	16.7	5	16.7	10	16.7
	c. Lower segment caeserian section	40	66.6	40	66.6	40	66.6
5	**Birth weight**						
	a. 2.5-3.0kg	5	16.7	9	30	14	23.3
	b. >3.0-3.5kg	16	53.3	12	40	28	46.7
	c. >3.5-4.0kg	9	30	9	30	18	30
6	**Religion**						
	a. Hindu	11	36.7	8	26.7	19	31.7
	b. Christian	10	33.3	9	30	19	31.7
	c. Muslim	9	30	13	43.3	22	36.6

7	**Feeding pattern**						
	a. Breast feeding	12	40	15	50	27	45
	b. Formula	8	26.7	5	16.7	13	21.7
	preparation	10	33.3	10	33.3	20	33.3
	c. Both						
8	**Education of mother**						
	a. No formal						
	education	5	16.7	5	16.7	10	16.7
	b. Primary	8	26.6	4	13.3	12	20
	c. High school	6	20	10	33.3	16	26.7
	d. Higher secondary	6	20	5	16.7	11	18.3
	e. Collegiate	5	16.7	6	20	11	18.3
9	**Occupation of mother**						
	a. Home maker						
	b. Daily wage worker	12	40	12	40	24	40
	c. Technical worker	11	36.7	4	13.3	15	25
	d. Professional	3	10	8	26.7	11	18.3
	worker	4	13.3	6	20	10	16.7
10	**Family income**						
	a. < Rs 3000	4	13.3	4	13.3	8	13.3
	b. Rs 3001-Rs 5000	14	46.7	7	23.3	21	35
	c. >Rs 5001	12	40	19	63.3	31	51.7
11	**Type of family**						
	a. Joint family	6	20	16	53.3	22	36.7
	b. Nuclear family	24	80	14	46.7	38	63.3

The table4.1 shows subjects 13(43.3%) were between 1- 3 days of Experimental group, 13(43.3%) were between 4- 6 days of Control group. With regard to birth order 16(53.3%) were 2nd child of Experimental group, 17(56.6%) were 2nd child of Control group. Regard to gender 15(50%) were male and female of Experimental group, 18(60%) were male of Control group. Regarding the type of birth 40(66.6%) were lower segment caeserian section of Experimental group, 40(66.6%) were lower segment caeserian section of Control group.

Regard to birth weight 16(53.3%) were >3.0-3.5kg of Experimental group, 12(40%) were >3.0- 3.5kg of Control group. With regard to religion 11(36.7%) were Hindu of Experimental group, 13(43.3%) were Muslims of Control group. Regarding feeding pattern 12(40%) were breast feeding of Experimental group, 15(50%) were breast feeding of Control group. Regard to education of mother 8(26.6%) were with Primary education of Experimental group, 10(33.3%) were with High school of Control group.

Regard to Occupation of mother 12 (40%) were Home maker of Experimental group, (40%) were Home maker of Control group. With regard to family income 14(46.7%) had family income between Rs.3001-Rs.5000 of Experimental group, 19(63.3%) had family income between >Rs.5001 of Control group. Regarding the type of family 24 (80%) were living in nuclear family of Experimental group and 16(53.3%) were living in joint family of Control group.

SECTION B

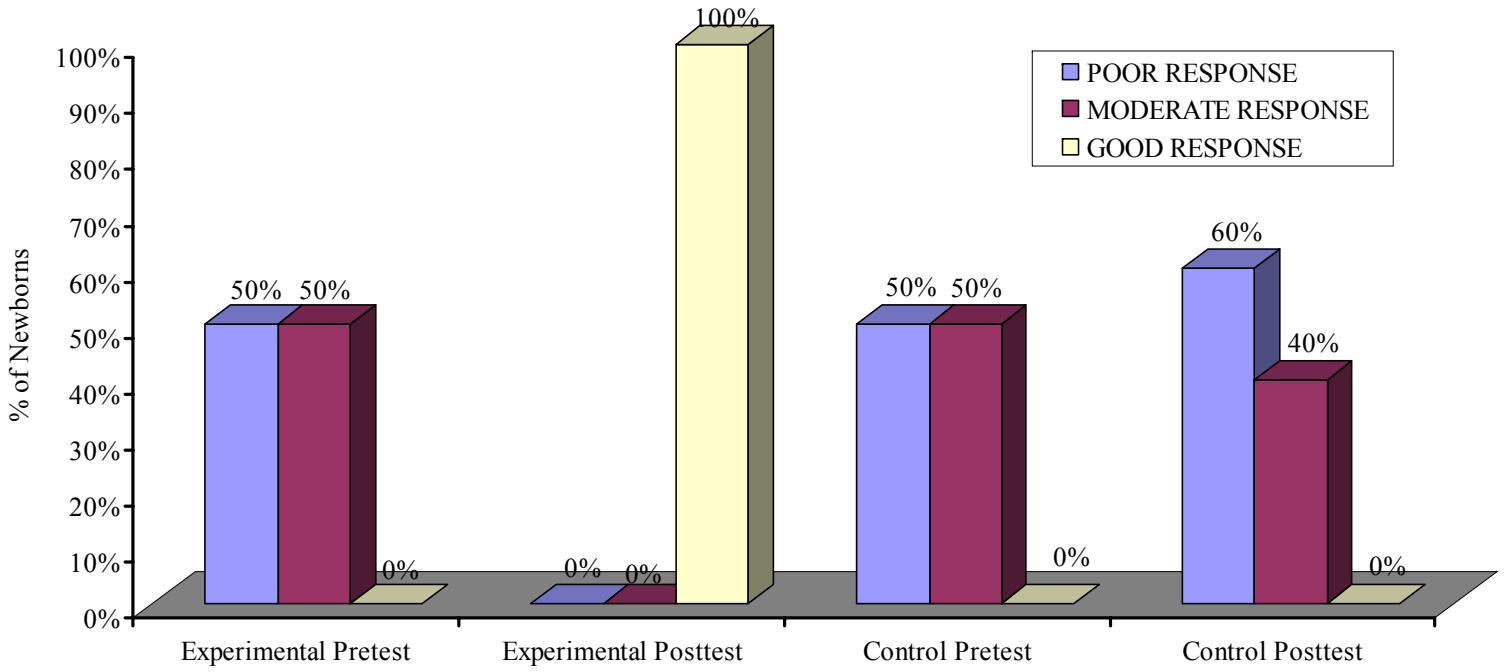

Figure 4.1 Pretest and Posttest score on selected parameters of newborns among Experimental and Control group

The figure 4.1 shows that the subjects 15(50%) had poor response, 15(50%) had moderate response, 0(0%) had good response in pretest of experimental group. The subjects 0(0%) had poor response, 0(0%) had moderate response, 30(100%) had good response in posttest of experimental group.

The subjects 15(50%) had poor response, 15(50%) had moderate response, 0(0%) had good response in pretest of Control group. The subjects 18(60%) had poor response, 12(40%) had moderate response, 0(0%) had good response in posttest of Control group.

Section-C

Table 4.2: Effectiveness of oil massage on selected parameters among newborns

n = 60

SL No	Variable	Maximum score	Experimental group		Control group		't' Value
			Mean	SD	Mean	SD	
1	Parameter assessment score	30	29	0.95	16.5	1.857	32.7*

*(P< 0.05)

The Table 4.2 Shows that there was a significant difference (P <0.05) between post test score on selected parameters of experimental group and control group. The mean post test score of experimental group was 29(±0.95), whereas in Control group it was 16.5(±1.857) respectively.

The 't' value shows that oil massage was effective on selected parameters among newborns of experimental group with the significant result (32.7) which is greater than the table value (1.671) at (P <0.05).

Hence H_1 is retained.

Section- D

Table 4.3: Association between selected parameters of newborns and their demographic variables among experimental group

n = 30

S. No	Demographic variables	Response				Chi-square
		Poor		Moderate		
		f	%	f	%	
1	**Age**					
	a) 1-3days	8	26.6	5	16.6	
	b) 4-6days	5	16.6	7	23.3	1.24
	c) >6days	2	6.6	3	10	
2	**Birth order**					
	a) 1st	4	13.3	7	23.3	
	b) 2nd	9	30	6	20	1.42
	c) 3rd	1	3.3	1	3.3	
	d) >3	1	3.3	1	3.3	
3	**Gender**					
	a) Male	6	20	9	30	1.2
	b) Female	9	30	6	20	
4	**Type of birth**					
	a) Normal birth	2	6.6	3	10	
	b) Assisted birth	1	3.3	4	13.3	3.64
	c) Lower segment caeserian section	12	40	8	26.6	
5	**Birth weight**					
	a) 2.5-3.0kg	3	10	2	6.6	
	b) >3.0-3.5kg	9	30	7	23.3	3.64
	c) >3.5-4.0kg	3	10	6	20	
6	**Religion**					
	a) Hindu	7	23.3	4	13.3	
	b) Christian	5	16.6	5	16.6	1.82
	c) Muslim	3	10	6	20	

7	**Feeding pattern**					
	a) Breast feeding	4	13.3	8	26.6	
	b) Formula preparation	5	16.6	3	10	2.71
	c) Both	6	20	4	13.3	
8	**Education of mother**					
	a) No formal education	1	3.3	4	13.3	
	b) Primary	5	16.6	3	10	
	c) High school	3	10	3	10	19.2*
	d) Higher secondary	4	13.3	2	6.6	
	e) Collegiate	2	6.6	3	10	
9	**Occupation of mother**					
	a) Home maker	6	20	6	20	
	b) Daily wage worker	6	20	5	16.6	0.44
	c) Technical worker	1	3.3	2	6.6	
	d) Professional worker	2	6.6	2	6.6	
10	**Family income**					
	a) < Rs. 3000	2	6.6	2	6.6	
	b) Rs.3001- Rs. 5000	7	23.3	7	23.3	0.95
	c) > Rs. 5001	6	20	6	20	
11	**Type of family**					
	a) Joint family	3	10	3	10	0.41
	b) Nuclear family	12	40	12	40	

* ($P < 0.05$)

The table 4.3 shows that there was a significant association ($P<0.05$) between the selected parameters of newborns and their education of mothers of experimental group .

Section- E

Table 4.4: Association between selected parameters of newborns and their demographic variables among control group

n = 30

S. No	Demographic variables	Response				Chi-square
		Poor		Moderate		
		f	%	f	%	
1	**Age**					
	a) 1-3 days	7	23.3	6	20	
	b) 4-6 days	5	16.6	7	23.3	0.612
	c) >6 days	3	10	2	6.6	
2	**Birth order**					
	a) 1st	3	10	6	20	
	b) 2nd	9	30	7	23.3	1.56
	c) 3rd	1	3.3	1	3.3	
	d) >3	2	6.6	1	3.3	
3	**Gender**					
	a) Male	8	26.6	11	36.6	1.292
	b) Female	7	23.3	4	13.3	
4	**Type of birth**					
	a) Normal birth	3	10	2	6.6	
	b) Assisted birth	1	3.3	4	13.3	2.2
	c) Lower segment caeserian section	11	36.6	9	30	
5	**Birth weight**					
	a) 2.5-3.0kg	5	16.6	4	13.3	
	b) >3.0-3.5kg	5	16.6	6	20	0.22
	c) >3.5-4.0kg	5	16.6	5	16.6	
6	**Religion**					
	a) Hindu	5	16.6	4	13.3	
	b) Christian	3	10	5	16.6	2.252
	c) Muslim	7	23.3	6	20	

7	**Feeding pattern**					
	a) Breast feeding	8	26.6	7	23.3	
	b) Formula preparation	3	10	2	6.6	0.66
	c) Both	4	13.3	6	20	
8	**Education of mother**					
	a) No formal education	3	10	2	6.6	
	b) Primary	1	3.3	4	13.3	
	c) High school	2	6.6	6	20	7.78
	d) Higher secondary	3	10	2	6.6	
	e) Collegiate	6	20	1	3.3	
9	**Occupation of mother**					
	a) Home maker	5	16.6	7	23.3	
	b) Daily wage worker	3	10	1	3.3	1.34
	c) Technical worker	4	13.3	4	13.3	
	d) Professional worker	3	10	3	10	
10	**Family income**					
	a) < Rs. 3000	3	10	2	6.6	
	b) Rs.3001- Rs. 5000	2	6.6	5	16.6	1.68
	c) > Rs. 5001	10	33.3	8	26.6	
11	**Type of family**					
	a) Joint family	8	26.6	11	36.6	1.292
	b) Nuclear family	7	23.3	4	13.3	

The table 4.4 shows that there was no significant association between the selected parameters of newborns and selected demographic variables such as age (Number of days), birth order, gender, type of birth, birth weight, religion, feeding pattern, education of mother, occupation of mother, family income and type of family among Control group.

CHAPTER-V
DISCUSSION

This chapter presents the interpretation of the statistical findings. It has been discussed based on the objectives of the aim of this study was to evaluate the effectiveness of oil massage on selected parameters among newborns in selected hospital at Trichy District.

An evaluative approach was used for the present study. The study population comprised of newborns. The sample size was 60. A convenience sampling technique was used to collect the data. The data collection tools used were Demographic variables, observational checklist was used to evaluate the level of effectiveness of oil massage.

Objective 1:- To assess the selected parameters of newborns among experimental group and control group.

The findings shows that the subjects 15(50%) had poor response, 15(50%) moderate response in pretest of experimental group and 15(50%) had poor response,15(50%) had moderate response in pre test of Control group.

Objective 2:- To evaluate the effectiveness of oil massage on selected parameters among newborns

There was a significant difference ($P<0.05$) between post test score on selected parameters of experimental group and control group. The mean post test score of experimental group was 29(±0.95), whereas in Control group it was 16.5(±1.857) respectively.

H_1:There will be significant difference between the mean post test score of selected parameters among newborns who undergo oil massage and who do not undergo oil massage at $P< 0.05$ level of significance.

*The findings were congruent with the study conducted by **Arora J, (2005)** to determine the effect of oil massage on growth and neuro behavior in very low birth weight preterm neonates. The study results showed that Weight gain in the oil*

massage group (365.8 +/- 165.2g) was higher compared to the only massage group (290.0 ±150.2g) and no massage group (285.0±170.4g). This difference in other anthropometric parameters was not statistically significant. Serum triglycerides and neonatal neuro behavior were comparable in the three groups.

Therefore hypothesis $H_1$is retained.

Objective 4:- To associate the selected parameters of newborns with their demographic variables among experimental group.

There was a significant association ($P<0.05$) between the selected parameters of newborns and their education of mothers of experimental group.

H_2: There will be significant association between the selected parameters of newborns and their demographic variables of experimental group at $P<0.05$ level of significance.

*The findings were congruent with the study conducted by **Ahmed Nawshad Uddin A.S.M, (2007)** to determine the acceptability of massage with skin barrier-enhancing emollients in young neonates in Bangladesh. The study results showed that influence of factors on use of oil massage in young neonates prior to admission associated with maternal education at P = 0.001 level of significance.*

Hence H_2 is retained.

Objective 4:- To associate the selected parameters of newborns with their demographic variables among control group.

The calculated chi- square value was less than the tabulated value at 0.05 levels, there was no significant association between the selected parameters of newborns and selected demographic variables such as age (Number of days), birth order, gender, type of birth, birth weight, religion, feeding pattern, education of mother, occupation of mother, family income and type of family among Control group.

H_3: There will be significant association between the selected parameters of newborns and their demographic variables of control group at P<0.05 level of significance.

The findings were congruent with the study conducted by ***Saeedi, (2008)*** *to determine the Transcutaneous Feeding: The Effect of Massage with Coconut Oil on Weight Gain in Preterm Newborns at Mashhad Medical University in Mashhad, Iran. The study results showed that no significant difference was found in sex, birth weight, gestational age, birth length, or birth head circumference (P < 0.05) level of significance.*

Hence H_3 is rejected

CHAPTER-VI
SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS

This chapter deals with summary of the study findings and its implications for nursing and health care services. It clarifies the implications and recommendations given for different areas like nursing education, nursing practice, administration for health care delivery system and nursing research.

Summary of the study

The purpose of the study was to evaluate the effectiveness of oil massage on selected parameters among newborns. An evaluative quasi experimental time series design was used to conduct this study among 60 newborns of experimental and control group at selected hospital in Trichy District, Tamilnadu.

Major findings of the study

- The subjects 13(43.3%) were between 1- 3 days of Experimental group, 13(43.3%) were between 4- 6 days of Control group. With regard to birth order 16(53.3%) were 2nd child of Experimental group, 17(56.6%) were 2nd child of Control group. Regard to gender 15(50%) were male and female of Experimental group, 18(60%) were male of Control group. Regarding the type of birth 40(66.6%) were lower segment caeserian section of Experimental group, 40(66.6%) were lower segment caeserian section of Control group.
- Regard to birth weight 16(53.3%) were >3.0-3.5kg of Experimental group, 12(40%) were >3.0- 3.5kg of Control group. With regard to religion 11(36.7%) were Hindu of Experimental group, 13(43.3%) were Muslims of Control group. Regarding feeding pattern 12(40%) were breast feeding of Experimental group, 15(50%) were breast feeding of Control group. Regard to education of mother 8(26.6%) were with Primary education of Experimental group, 10(33.3%) were with High school of Control group.
- Regard to Occupation of mother 12 (40%) were Home maker of Experimental group, (40%) were Home maker of Control group. With regard to family income 14(46.7%) had family income between Rs.3001-Rs.5000 of

Experimental group, 19(63.3%) had family income between >Rs.5001 of Control group. Regarding the type of family 24 (80%) were living in nuclear family of Experimental group and 16(53.3%) were living in joint family of Control group.

- The subjects 15(50%) had poor response, 15(50%) had moderate response, 0(0%) had good response in pretest of experimental group. The subjects 0(0%) had poor response, 0(0%) had moderate response, 30(100%) had good response in posttest of experimental group.
- The subjects 15(50%) had poor response, 15(50%) had moderate response, 0(0%) had good response in pretest of Control group. The subjects 18(60%) had poor response, 12(40%) had moderate response, 0(0%) had good response in posttest of Control group.
- There was a significant difference (P <0.05) between post test score on selected parameters of experimental group and control group. The mean post test score of experimental group was 29(±0.95), whereas in Control group it was 16.5(±1.857) respectively.
- There was a significant association (P<0.05) between the selected parameters of newborns and their education of mother of experimental group .
- There was no significant association between the selected parameters of newborns and selected demographic variables of Control group.

Conclusion

The findings of the study , Statistically proved that oil massage on selected parameters among newborns is effective. There was a significant association (P<0.05) between the selected parameters of newborns and their education of mothers of experimental group.

Nursing implications

The findings of this study had implications in various areas of nursing i.e., nursing practice, administration, education.

Implication in Nursing Practice

- Nurses should be considered as the first hand resources, in educating the transitional changes that take place in the newborn.

- Nurses can intervene oil massage therapy to alter the physical discomfort and psychological disequilibrium of the newborn.
- Nurses can teach the family members about oil massage in order to improve the health status of the newborn.

Implication in Nursing Administration

- Nurse administrators should arrange health education programme to newborns of parents regarding importance of oil massage to improve the health status of newborns.
- Nurse administrators encourage the nurses to prepare adequate assessment tool for assessing the health status of newborn in hospital and community.
- The administrator should emphasize and encourage the nurse to use skills and knowledge to apply oil massage for newborns.

Implication in Nursing Education

- Nurse educator should be given in-service education to update their knowledge and abilities regarding oil massage.
- Nurse educator can educate the parents of newborn regarding oil massage
- Nursing students must be specially trained to assess the changes in selected parameters of newborns. So that it will help them to plan appropriate care.
- Nurse educators can effectively teach the uses and significance of oil massage and it helps the nursing students to gain knowledge regarding oil massage. It helps nursing students to perform oil massage among newborns in order to improve the health status of the baby.

Recommendations

Recommendations for further research:

- A study can be conducted on knowledge, attitude and practice of mothers regarding oil massage.
- A comparative study can be done among rural and urban area.
- A comparative study can be done among pre term and term neonates.
- The same study can be followed up for longer period of time to find out long term effects of oil massage
- The same study can be conducted in community set up.

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ANNEXURE – A

Letter seeking permission to conduct a research study

SARA NURSING COLLEGE

(Recognised by Govt. of Tamil Nadu, Affiliated to
T.N. Dr. M.G.R. Medical University & Approved by Indian Nursing Council)

Palani Main Road, Manakadavu,
Dharapuram - 638 673, Tirupur District,
Tamil Nadu, South India.

Phone : 04258-244208, Fax : 04258-244254
E-mail : saranursingcollege@gmail.com
website : www.saranursingcollege.com

From,

The Principal,
Sara Nursing College,
Dharapuram.

Date:
Lr.No.SNC.78A/06/11

To,

Chief Medical Officer
Jegatha Maternity Hospital,
Trichy.

Respected sir,

Ms. K. Sangeetha is a bonafide student of Sara Nursing College, Dharapuram, doing her M.Sc. (N) Programme in Nursing. She is conducting a research on

A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District. The research project to the submitted to "The Tamilnadu Dr.M.G.R Medical University" as a partial fulfillment of the university requirements for the award of M.Sc.(N)., Degree. The researcher is anticipating that this project will be beneficial in improving the nursing care among newborns at your esteemed Institution.

As part of the study she needs to observe the selected subjects on selected parameters among newborn babies and document the collected data for analysis and report.

Hence I request your kind consent for her to conduct the study from 20th June to 4th August at your esteemed Institution. Further details of the proposed project outcome will be furnished by the researcher in person. The hospital norms, policies and ethics will be respected and strictly adhered by the researcher throughout the study period.

A. Veenajagaram

Dr VEENA JAGARAM, M.D.(O G)
REGN NO:57170
JAGADHA MATERNITY HOME
A-2, FIRST CROSS WEST EXT.,
TRICHY - 620 018.

Thanking You

SARA NURSING COLLEGE * MANAKADAVU - DHARAPURAM * Tirupur Dist 638 673

Principal

03/06/11

PRINCIPAL
Sara Nursing College,
Dharapuram - 638 673.

ஜெகதா மருத்துவமனை
276 0815
96000 71717
JAGADHA HOSPITAL
3, FIRST CROSS WEST EXTENSION, THILLAI NAGAR, TRICHY - 620 018.

Date: 28.7.2011

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Miss. K. Sangeetha II Year Msc (N) has conducted research on "A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District" in our hospital from 29.6.2011 to 28.7.2011.

A. Veenagagaram

DIRECTOR,
DR. VEENA JAGARAM M.D(OG).

Dr VEENA JAGARAM, M.D.(O G),
REGN No:57170
JAGADHA MATERNITY HOME
A-2,FIRST CROSS WEST EXT.,
TRICHY - 620 018.

ANNEXURE - B
Tool
Section – A

Demographic data

Part- A

Newborn's Profile

1) Age

a) 1 – 3 Days

b) 4-6 Days

c) >6 Days

2) Birth order of baby

a) 1st

b) 2nd

c) 3rd

d) >3

3) Gender

a) Male

b) Female

4) Type of Birth

a) Normal Birth (Vaginal delivery)

b)Assisted Birth (Vaccum or forceps)

c)Lower Segment Caeserian Section

5) Birth weight

a) 2.5 kg – 3.0 kg

b) >3.0 kg - 3.5 kg

c) >3.5 kg - 4.0 kg

6) Religion

a) Hindu

b) Christian

c) Muslim

7) Feeding pattern

a) Breast feeding

b) Formula Preparation

c) Both

Part – B

Mother's Profile

8) Education of mother

a) No formal education

b) Primary

c) Higher school

d) Higher secondary

e) Collegiate

9) Occupation of mother

a) Home Maker

b) Daily Wage Worker

c) Technical Worker

d) Professional Worker

10) Family Income

a) < Rs. 3000

b) Rs. 3001–Rs.5000

c) >Rs. 5001

11) Type of family

a) Joint family

b) Nuclear family

Section- B

Selected parameters such as skin integrity, heart rate, respiratory rate, hypothermia, and frequency of feeding pattern, digestion, sleep, sign of infection, colic and gas, comfort and stress by using observational checklist

SL No	Question	Score	Pretest	Posttest		
				1	2	3
1	Skin integrity a) Impaired(dry) b) Intact(Shiny ,moist)					
2	Turgor of skin a) Restores slowly b) Restores quickly					
3	Texture of skin a) Rough skin b) Smooth skin					
4	Heart Rate a) <120-160 beats/minute b) 120-160 beats/minute					
5	Respiratory Rate a) >30-60 breaths/minute b) 30-60 breaths/minute					
6	Hypothermia a) $<32.0^0$ Celsius -36.5^0Celsius b) 36.5^0 Celsius -37.5^0Celsius					

7	Frequency of feeding pattern in day time a) < 2-3times b) ≥ 2-3times					
8	Digestive ability a) Bowel sounds <10 -30/ minute b) Bowel sounds 10 -30/ minute					
9	Duration of sleep in day time a) <4 hours b) ≥5 hours					
10	Frequency of sleep in day time a) 2-3times b) >3 times					
11	Disturbance of sleep(Irritable cry, Absence of adequate feeding) a) Present b) Absent					
12	Sign of infection (Cold, Fever) a) Present b) Absent					
13	Colic and Gas(Irritable cry, Abdominal tenderness, Abdominal distension) a) Present b) Absent					

14	Comfort(Absence of Irritable cry, adequate feeding) a) Absent b) Present					
15	Stress behaviors (Sneezing, yawning, crying, jerking of limbs) a) Present b) Absent					

SCORING KEY:

50% and below - Poor response

51- 74% - Moderate response

75% and above - Good response

ANNEXURE – C

Coconut Oil massage

Articles

A tray containing

- Towel
- Coconut oil
- Measuring cup
- Rag pieces

Procedure

- Spread a soft towel on a flat surface and undress the baby. Put the baby down with his or her face.
- Rub only about half a teaspoon of oil at a time on care giver's palm's, so that they glide easily on the baby's body. Care giver can apply more oil later as needed.
- The massage will be provided for babies by following Timing, duration of oil massage for 5 minutes on each babies.

Timings are		
Morning	:	8am-10am
Afternoon	:	12 noon- 2pm
Evening	:	4pm- 6pm

- Make sure that caregiver's hands are warm.
- Use smooth, gentle but firm strokes with pads of caregiver's hands.
- With both caregiver hands, massage the chest using gentle downward strokes and massage the stomach in a circular motion.
- Downward circular motion will be given by caregiver's pad of fingers from shoulder to wrist.
- Circular motion downward stroking will be given by caregiver's pad of fingers from hip to ankle.
- Efflurage back massage will be given.

- Don’t put too much pressure on the baby’s fragile body and avoid the spine area.
- Keep the baby engaged while massaging him or her by taking or singing to the baby.
- Sudden break in contact of caregiver’s hands may cause alarm to the baby. Therefore take care to be gentle while stopping the massage.
- Don’t apply oil to the baby’s palms or fingers as these little ones tend to put them in their mouth or eyes often which may cause irritation.
- Wrap the baby in a clean and warm towel after the massage and cuddle him or her.
- Don’t wake up the baby for a massage.
- Avoid rashes, wounds or areas where the baby has got his injections or vaccines as it may hurt.

ANNEXURE - D

Letter requesting opinion and suggestion of experts for content Validity of the research tool

From

Miss. K. Sangeetha.
Sara Nursing College,
Dharapuram,
Tirupur Dist, Tamil Nadu.

To

Through

The Principal,
Sara Nursing College,
Dharapuram, Tirupur Dist.

Respected Sir/Madam

SUBJECT: Letter requesting opinion and suggestions from experts for establishing content validity of the tool.

I am a II Year M.Sc., Nursing student of Sara Nursing College, Dharapuram. As a partial fulfillment of Masters Degree in Nursing, I have selected the topic mentioned below for the research project to be submitted to "The Tamilnadu Dr. M.G.R. Medical University, Chennai".

Topic: A study to evaluate the effectiveness of oil Massage on selected parameters among newborns at selected Hospital in Trichy District.

Enclosed here with : 1. Proposal
2. Tool

May I request you to kindly validate the following enclosure and give your expert opinion and suggestion for necessary modification of the tool.

Thanking you in anticipation

Yours obediently

ANNEXURE – E

Certificate of Validation

This is to certify that the tool developed by Ms. K. Sangeetha II year M. Sc(N) of Sara Nursing College on a topic "A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District", has been validated by undersigned. The suggestions and modifications given by me will be incorporated by the investigator by the investigator in collaboration with their respective guide.

Name: Signature:

Designation: Seal:

Date:

ANNEXURE – F

List of experts

- **Prof. Malliga Rajadurai, M.Sc (N)., (Ph.D).,**
  Principal,
  Indirani College of Nursing,
  Pondicherri.

- **Prof. Sumithra, M.Sc(N).,**

  Principal,
  Karpaga Vinayaga College of Nursing,
  Pudukkottai.

- **Prof. Sherene G. Edwin, M.Sc(N)., (Ph.D).,**

  Vice-Principal,
  Jennys College of Nursing,
  Trichy.

- **Dr. Arivanand, M.B.B.S., M.D (Ped).,**

  Maharishi Nursing Home,
  Dharapuram.

ANNEXURE - G

CERTIFICATE FOR ENGLISH EDITING

I here by certify that, I have edited the work of Ms. K. Sangeetha II year M.Sc. (N)., student of Sara Nursing College, Dharapuram who is under dissertation work on " A study to evaluate the effectiveness of oil massage on selected parameters among newborns at selected hospital in Trichy District.

Date:

Signature

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ANNEXURE – H

PHOTOS